Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for determining the function or effect of ~~a genetic element~~ an effector nucleic acid sequence from a library of effector nucleic acid sequences or a chemical modulator from a library of ~~said genetic elements and~~ chemical modulators ~~having~~ of known and unknown function on a population of cells comprising:

i) determining the distribution of a detectable label expressed from an indicator nucleic acid sequence ~~being expressed~~ in said cells in the presence ~~and~~ or the absence of a first chemical modulator ~~or first genetic element~~, which modulator ~~or genetic element~~ affects said distribution of said ~~indicator~~ detectable label, wherein the cells are both co-expressing ~~an~~ said library of effector nucleic acid ~~sequence~~ sequences and are in the presence of ~~a~~ said library of second chemical ~~modulator or second genetic element~~ modulators; and

ii) analysing the distribution data of said detectable label from all combinations of said effector, modulator ~~or genetic element~~ and indicator to derive

functional linkages and assign function to the effector and said second modulator ~~or second genetic element~~.

Claim 2 (currently amended): A method for determining the function or effect of ~~a genetic element~~ an effector nucleic acid sequence from a library of effector nucleic acid sequences or a chemical modulator from a library of ~~said genetic elements and~~ chemical modulators of known and unknown function on a population of cells comprising:

i) determining the distribution of a detectable label expressed from an indicator nucleic acid sequence ~~being expressed~~ in said cells in the presence of a first chemical modulator ~~or first genetic element~~, which modulator ~~or genetic element~~ affects said distribution of said detectable label ~~indicator~~, wherein the cells are both co-expressing said library of ~~an~~ effector nucleic acid ~~sequence~~ sequences and are in the presence of said library of ~~a~~ second chemical modulators ~~modulator or second genetic element~~;

ii) comparing the distribution data of i) above with known distribution data, stored on an electronic or optical database, for the detectable label ~~indicator nucleic acid sequence~~ in the absence of said first chemical modulator ~~or first genetic element~~; and

iii) analysing the distribution data of said detectable label from all combinations of said effector, modulator ~~or genetic element~~ and indicator to derive

functional linkages and assign function to the effector and said second modulator ~~or second genetic element~~.

Claim 3 (previously presented): The method of claim 1, wherein the effector nucleic acid sequence encodes a protein or peptide and is selected from the group consisting of DNA, cDNA, RNA and Protein Nucleic Acid.

Claim 4 (previously presented): The method of claim 1, wherein the effector nucleic acid is an antisense oligonucleotide.

Claim 5 (withdrawn): The method of claim 1, wherein the effector nucleic acid is a small interfering RNA (siRNA) which causes gene silencing.

Claim 6 (previously presented): The method of claim 1, wherein the effector nucleic acid includes a nucleic acid sequence in a cellular expression vector.

Claim 7 (original): The method of claim 6, wherein said expression vector is selected from the group consisting of plasmid, retrovirus and adenovirus.

Claim 8 (cancelled)

Claim 9 (currently amended): The method of claim 1 ~~claim 8~~, wherein the indicator nucleic acid sequence is created by fusing the effector sequence to a nucleic acid sequence encoding a detectable label.

Claim 10 (currently amended): The method of claim 1 ~~claim 8~~, wherein said detectable label is selected from the group consisting of fluorescent proteins, enzymes, antigens and antibodies.

Claim 11 (previously presented): The method of claim 10, wherein said fluorescent protein is a modified Green Fluorescent Protein (GFP) having one or more mutations selected from the group consisting of Y66H, Y66W, Y66F, S65T, S65A, V68L, Q69K, Q69M, S72A, T203I, E222G, V163A, I167T, S175G, F99S, M153T, V163A, F64L, Y145F, N149K, T203Y, T203Y, T203H, S202F and L236R.

Claim 12 (previously presented): The method of claim 11, wherein said modified GFP has three mutations selected from the group consisting of F64L-V163A-E222G, F64L-S175G-E222G, F64L-S65T-S175G and F64L-S65T-V163.

Claim 13 (withdrawn): The method of claim 10, wherein said enzyme is selected from the group consisting of β-galactosidase, nitroreductase, alkaline phosphatase and β-lactamase.

Claim 14 (currently amended): The method of claim 1, wherein the second modulator is selected from the group consisting of organic compound, inorganic compound, peptide, polypeptide, protein, carbohydrate, lipid, nucleic acid, polynucleotide and protein nucleic acid.

Claim 15 (currently amended): The method of claim 1, wherein the second modulator is selected from a combinatorial library comprising similar organic compounds such as analogues or derivatives.

Claim 16 (previously presented): The method of claim 1, wherein said cell is an eukaryotic cell.

Claim 17 (previously presented): The method of claim 16, wherein said eukaryotic cell is selected from the group consisting of mammal, plant, bird, fungus, fish and nematode cells, which cell may or may not be genetically modified.

Claim 18 (previously presented): The method of claim 17, wherein said mammalian cell is a human cell.

Claim 19 (currently amended): The method of claim 1, wherein the distribution of the detectable label ~~indicator nucleic acid~~ is determined using an imaging system.

Claim 20 (cancelled)